

CLAIMS:

1. A method of speeding up a relay operation across an internetworking connection, such as a TCP-connection, between a client device in a first location and a server device in a second location in a network which comprises multiple access nodes or communication paths between said client and server devices, which method comprises the use of a command protocol hosted by a controlling component, whereby the method
5 comprises the following operations:
- initiating a connection between the client device and the server device on the internet;
 - creating a special connection over a number of available access networks to a merging/splitting component on the internet;
 - 10 – creating a connection between the merging/splitting component on the internet and the server device in the second location;
 - splitting traffic from an application running on the client device in the first location itself;
 - transmitting the splitted data packets originating from the client device through a number of IP addresses across the internet;
 - 15 – when appropriate retransmitting unacknowledged packets or if appropriate switching a retransmission protocol over from one access network to another;
 - merging the streams of packets originating from the client device through a number of IP addresses at the merging/splitting component on the internet; and
 - forwarding the merged streams to the server device in the second location;
- 20 whereby any traffic from the server device to the client device follows the above steps in reverse functional order.
2. A method of speeding up a relay operation across an internetworking connection according to claim 1, whereby the method further comprises the operation of
25 monitoring the bandwidths over a number of access networks available to the client device with respect to the merging/splitting component on the internet and of responding to any change in the available bandwidth by generating control instructions for switching the connection at the client end for making maximum use of the available bandwidth.

3. A method of speeding up a relay operation across an internetworking connection according to claim 1, whereby there are multiple operations for merging the streams of packets originating from the server device through a number of IP addresses at the merging/splitting component on the internet and for splitting the traffic in the reverse
5 direction.

4. A splitting/merging device suitable for use with a client device in a first location or with a server device in a second location in a method of speeding up a relay operation according to claim 1, whereby the splitting/merging device comprises:

- 10 – means for interoperating with a connection between the client device and the server device on the internet;
- means for creating a special connection over a number of available access networks between the splitting/merging device itself and a merging/splitting component on the internet;
- 15 – means for splitting traffic from an application running on the client device in the first location into splitted data packets;
- means for transmitting splitted data packets across the internet through a number of IP addresses to the merging/splitting component on the internet;
- means for switching a retransmission protocol over from one access network to another;
- 20 – means for merging the splitted data packets received at the merging/splitting component into a merged stream;
- means for forwarding the merged stream to the server device in the second location;
- optionally means for receiving a data stream from the server device in the second location;
- 25 – optionally means for splitting the data stream into splitted data packets;
- optionally means for transmitting splitted data packets across the internet through a number of IP addresses to the splitting/merging device;
- optionally means for switching a retransmission protocol over from one access network to another;
- 30 – means for receiving the packets transmitted by the merging/splitting component across the internet to the splitting/merging device, and
- means for merging any splitted streams of packets transmitted by the merging/splitting component to the splitting/merging device.

5. A splitting/merging device according to claim 4, whereby the device further comprises means for monitoring the bandwidths over a number of access networks available to the client device with respect to the merging/splitting component on the internet and means
5 for responding to any change in the available bandwidth by generating control instructions for switching the connection at the client end for making maximum use of the available bandwidth.

6. A computer programme comprising instructions, which instructions include at
10 least code defining the processes or functions to be performed with respect to splitting traffic from an application running on the client device in the first location itself and monitoring the bandwidths over all access networks available to the client device with respect to the merging/splitting component on the internet for causing a programmable processing
apparatus having or being connected to transmission hardware to become operable to execute
15 the splitting/merging and switching operations of the method of switching a connection according to claim 1.

7. A system for speeding up a relay operation across an internetworking
connection, such as a TCP connection, between a client device in a first location and a server
20 device in a second location in a network which comprises multiple access nodes or channels between said client and server devices, which system comprises

at its client end:

- means for proxying a connection between said client and server devices;
- 25 – means for creating the proxied connection into multiple separate connections for different communication paths; and
- means for routing these separate connections over said different communication paths; and

30 and intermediate to or at its server end:

- means for receiving traffic across said number of different communication paths and/or sending traffic across said different communication paths, respectively;
- means for merging said traffic into a merged stream and forwarding the same through a single connection, and/or splitting traffic into different streams, respectively; and

- means for forwarding merged traffic to the server device, and forwarding traffic received from the server device onto said means to be forwarded by the latter as a single stream if and when appropriate splitted into traffic across said different communication paths, respectively.

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8. A system according to claim 7, whereby the system further comprises

- means for monitoring any bandwidth available over said separate communication paths; and
- means for responding to any change in the available bandwidth, which means generate control instructions for use by means for switching the TCP connection at the client end to make maximum use of the available bandwidth.

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